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MARY M LEE, P.C. 1300 E. NINTH STREET SUITE 4 EDMOND, OK 73034-5760			EXAMINER GREENE, JASON M	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,610	STRAHAN, RONALD L.	
	Examiner	Art Unit	
	Jason M. Greene	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-11,14-17,20-25,27-31,34 and 35 is/are rejected.
- 7) ☒ Claim(s) 7,8,12,13,18,19,26,32 and 33 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/28/03, 2/10/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claims

1. With regard to claim 2, the Examiner suggests Applicants delete the word "is" in line 2 to improve the readability of the claim language.
2. Claim 33 recites repeating the method of claim 21 in line 3. However, claim 21 is directed to a system and not to a method. It appears as though Applicants intended the claim to recite "claim 25" instead of "claim 21". Accordingly, the Examiner has assumed the recitation of "claim 21" should read as "claim 25".

Claim Objections

3. Claim 33 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Specifically, claim 33 refers back to two claims (32 and 25, see discussion above) to different features cumulatively.

Claim Rejections - 35 USC § 102

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by the printed publication “Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas” (hereinafter the “Field Evaluation of a Membrane-Based Separation System” publication).

With regard to claims 1, 15 and 16, the “Field Evaluation of a Membrane-Based Separation System” publication teaches a mobile gas separator system capable of temporary use at the well site of a natural gas well following stimulation that produces dirty gas, the system comprising a mobile support (the skids) adapted to be parked temporarily at the well site, a gas separator (the cellulose acetate membrane) mounted on the mobile support and adapted to remove selected contaminants (CO₂, H₂S and H₂O) from dirty natural gas to produce marketable gas, a pretreatment assembly (the pretreatment filters) mounted on the mobile support, the pretreatment assembly being adapted to receive dirty gas from the gas well, to prepare the dirty gas for the gas separator, and to conduct the prepared dirty gas to the gas separator in Fig. 1 and page 1, col. 1, line 1 to page 2, col. 3, line 49. The Examiner specifically notes that the

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system is seen as being mobile since it is mounted on skids (see page 1, col. 2, lines 19-27) and can be transported to different well sites.

With regard to claim 2, the "Field Evaluation of a Membrane-Based Separation System" publication teaches the pretreatment assembly comprising a first separator (the most upstream pretreatment filter, not individually shown) adapted to remove selected contaminants from the dirty gas in Fig. 1 and page 1, col. 1, line 1 to page 2, col. 3, line 49.

6. Claims 25 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" (hereinafter the "Field Evaluation of a Membrane-Based Separation System" publication).

With regard to claim 25, the "Field Evaluation of a Membrane-Based Separation System" publication teaches a method for processing dirty natural gas to produce marketable gas comprising conducting dirty natural gas from a first well following stimulation to a mobile (skid-mounted) gas separator system at the well site of the first gas well and processing the dirty gas in the gas separator system to produce marketable gas in Fig. 1 and page 1, col. 1, line 1 to page 2, col. 3, line 49. The Examiner specifically notes that the system is seen as being mobile since it is mounted on skids (see page 1, col. 2, lines 19-27) and can be transported to different well sites.

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Additionally, the phrase "following stimulation" in line 4 has been interpreted as being any time following stimulation and not just a period immediately following stimulation. Accordingly, even though the "Field Evaluation of a Membrane-Based Separation System" publication does not specifically mention the well being stimulated, the Examiner notes that the method includes "conducting dirty natural gas from a first gas well following stimulation" since the gas well was stimulated during the initial drilling process.

With regard to claims 27-29, the Field Evaluation of a Membrane-Based Separation System" publication teaches the processing step comprising removing carbon dioxide from the dirty gas using a membrane gas separator (the membrane housing) in Fig. 1 and page 1, col. 1, line 1 to page 2, col. 3, line 49.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas".

The "Field Evaluation of a Membrane-Based Separation System" publication teaches the system comprising a heater adapted to adjust the temperature of the pretreatment dirty gas to a temperature suitable for the gas separator in Fig. 1.

The "Field Evaluation of a Membrane-Based Separation System" publication does not teach the heater being a component of the pretreatment assembly mounted on the mobile support.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the heater of the "Field Evaluation of a Membrane-Based Separation System" publication into the pretreatment assembly mounted on the mobile support so that a separate heater would not have to be provided at each individual well site.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the "Field Evaluation of a Membrane-Based Separation System" publication in view of Behling et al.

The "Field Evaluation of a Membrane-Based Separation System" publication does not explicitly teach the first separator comprising a sand separator adapted to remove particulate matter from the dirty gas.

Behling et al. discloses a similar separator system comprising a filter (21) adapted to separate sand and other particulate matter from the dirty gas in Figs. 2 and 3 and col. 4, line 65 to col. 5, line 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the sand filter of Behling et al. into the pretreatment assembly of the "Field Evaluation of a Membrane-Based Separation System" publication to filter out particulate impurities contained in the dirty natural gas, as suggested by Behling et al. in col. 4, line 65 to col. 5, line 2.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of Daus et al. '549.

The "Field Evaluation of a Membrane-Based Separation System" publication does not teach the pretreatment assembly comprising a second separator adapted to remove small oil and water aerosols.

Daus et al. '549 teaches a gas separator system having a coalescing filter (37) between a compressor (30) and a membrane separator (42) to remove small oil aerosols from the gas stream prior to the gas passing through the membrane separator in Fig. 1 and col. 3, lines 2-31.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the coalescing filter of Daus et al. '549 into the pretreatment assembly of the "Field Evaluation of a Membrane-Based Separation

System” publication to protect the membrane separator from oil aerosols released by the compressor, as suggested by Daus et al. '549 in col. 3, lines 2-31. Additionally, the coalescing filter of Daus et al. '549 will also remove any small water aerosols that are entrained in the gas.

The Examiner notes that the limitation “comprises a second separator adapted to remove small oil and water aerosols” in line 2 has been interpreted to mean the separator for removing small oil and water aerosols is located downstream from a first separator forming part of the pretreatment assembly.

11. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication “Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas” in view of Prasad et al.

The “Field Evaluation of a Membrane-Based Separation System” publication does not teach the pretreatment assembly comprising a guard vessel adapted to remove oil and glycol vapors.

Prasad et al. teaches a gas separator system comprising a guard vessel (11) comprising an activated carbon adsorbent upstream from a membrane separator (13) to remove heavier oil hydrocarbons vapors prior to the gas passing through the membrane separator in Fig. 1 and col. 4, line 61 to col. 6, line 68.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the activated carbon guard vessel of Prasad et al. into the pretreatment assembly of the “Field Evaluation of a Membrane-Based

Separation System" publication to protect the membrane separator from oil vapors contained in the dirty natural gas, as suggested by Prasad et al. in col. 4, line 61 to col. 6, line 68. Additionally, the activated carbon guard vessel of Prasad et al. will also remove any glycol vapors contained in the dirty natural gas.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" and Prasad et al. as applied to claim 9 above, and further in view of Daus et al. '549.

The "Field Evaluation of a Membrane-Based Separation System" publication and Prasad et al. do not teach the pretreatment assembly comprising a polishing filter downstream of the guard vessel adapted to remove additional aerosols and particulate matter from the dirty pretreatment gas.

Daus et al. '549 teaches a gas separator system comprising a polishing filter (40) downstream of a guard vessel (38) adapted to remove additional aerosols and particulate matter from the dirty pretreatment gas in Fig. 1 and col. 3, lines 2-31.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the polishing filter of Daus et al. '549 into the pretreatment assembly of the "Field Evaluation of a Membrane-Based Separation System" publication and Prasad et al. to remove and particulates that are entrained in the gas exiting the guard vessel, such as fine carbon particulates, as suggested by Daus et al. '549 in col. 3, lines 24-28.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of Yetman.

The "Field Evaluation of a Membrane-Based Separation System" publication does not disclose the mobile support comprising a trailer adapted to be removably connected to a vehicle for transporting the system.

Yetman teaches a mobile gas separator assembly (11) for treating dirty natural gas wherein the mobile support comprises a trailer (3) adapted to be removably connected to a vehicle (not shown) for transporting the system in Fig. 1 and paragraphs 0024 to 0027.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the trailer of Yetman into the system of the "Field Evaluation of a Membrane-Based Separation System" publication to facilitate the movement of the system from one location to another.

14. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of the printed publication "Field Evaluation Supports Applicability of Membrane Processing".

The “Field Evaluation of a Membrane-Based Separation System” publication teaches the membrane separator comprising a cellulose acetate polymer membrane module (the membrane housing) in Fig. 1 and page 1, col. 2, lines 40-41.

The “Field Evaluation of a Membrane-Based Separation System” publication does not disclose the membrane separator comprising a plurality of modules.

The “Field Evaluation Supports Applicability of Membrane Processing” publication teaches a similar mobile gas separator system comprising a plurality of membrane separators comprising cellulose acetate polymer membrane modules (membrane tubes) in Fig. 3 and page 4, lines 10-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the plurality of membrane modules of the “Field Evaluation Supports Applicability of Membrane Processing” publication into the system of the “Field Evaluation of a Membrane-Based Separation System” publication to allow the system to continue operating if one of the membrane modules is damaged or taken out of service for maintenance, as is well known in the art.

The “Field Evaluation Supports Applicability of Membrane Processing” publication does not indicate a date of publication. However, the Examiner notes Applicants expressly admitted the publication having a publication date prior to the filing date of the instant application in the Information Disclosure Statement filed 28 October 2003.

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15. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of Daus et al. '919.

The "Field Evaluation of a Membrane-Based Separation System" publication does not teach the system further comprising a heat exchanger mounted on the mobile support and adapted to adjust the temperature of the post-treatment gas received from the gas separator to a marketable temperature or means for maintaining the pressure of the post-treatment gas at a marketable level.

Daus et al. '919 teaches a natural gas separator system comprising a heat exchanger (104) adapted to adjust the temperature of the natural gas product stream to a marketable temperature (the pipeline temperature) and means (the pressure control valve 94 and the compressor 102) for maintaining the pressure of the natural gas product stream at a marketable level (the pipeline pressure) in Fig. 1 and col. 4, lines 5-22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the heat exchanger and pressure control means of Daus et al. '919 into the system of the "Field Evaluation of a Membrane-Based Separation System" publication to prepare the post-treatment gas for introduction into a commercial pipeline, as suggested by Daus et al. '919 in col. 4, lines 5-22. Additionally, while the "Field Evaluation of a Membrane-Based Separation System" publication and Daus et al. '919 do not disclose the heat exchanger being mounted on the mobile support, one of ordinary skill in the art would have recognized that the heat exchanger

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could have been mounted on the mobile support to allow the same heat exchanger to be used at several different well sites to lower overall capital costs.

16. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" and Daus et al. '919 as applied to claim 21 above, and further in view of Heath.

The "Field Evaluation of a Membrane-Based Separation System" publication and Daus et al. '919 do not disclose the means for maintaining the pressure of the post-treatment gas at a marketable level being an adjustable choke.

Heath teaches using an adjustable choke valve (5) to maintain the pressure of a natural gas stream at a pressure compatible with a sales gas line (26) in Fig. 1 and col. 5, lines 42-48.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the choke valve of Heath for the pressure control valve of the "Field Evaluation of a Membrane-Based Separation System" publication and Daus et al. '919 in that such are alternate valves in the art for controlling the pressure of a natural gas stream, mere substitution of one known pressure control valve for another in the art being within the scope of one of ordinary skill in the art.

17. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of Woodall et al.

The "Field Evaluation of a Membrane-Based Separation System" publication does not teach the system comprising a liquifaction unit adapted to receive the marketable gas and convert it to a liquid phase or containers adapted to receive the liquefied marketable gas.

Woodall et al. teaches a natural gas separation system comprising a liquifaction unit (14) adapted to receive the marketable gas and convert it to a liquid phase and containers (9) adapted to receive the liquefied marketable gas in Fig. 2 and col. 8, line 53 to col. 10, line 22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the liquification unit and receiving containers of Woodall et al. into the system of the "Field Evaluation of a Membrane-Based Separation System" publication to allow the system to be used in remote areas where pipeline construction is not commercially feasible, as suggested by Woodall et al. in col. 1, lines 27-51.

18. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of Daus et al. '549.

The "Field Evaluation of a Membrane-Based Separation System" publication teaches the processing step comprising pretreating the gas in pretreatment filters prior to removing the carbon dioxide.

The "Field Evaluation of a Membrane-Based Separation System" publication does not teach the pretreatment removing particulate matter, free water, aerosols, condensates, oil and glycol.

Daus et al. '549 teaches a similar method for processing dirty natural gas including a processing step comprising pretreating the gas in a coalescer filter, an adsorption filter and a particulate filter prior to removing the carbon dioxide for the removal of particulate matter, free water, aerosols, condensates, oil and glycol Fig. 1 and col. 3, lines 2-31.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the coalescer filter, adsorption filter and particulate filter of Daus et al. '549 into the method of the "Field Evaluation of a Membrane-Based Separation System" publication to prevent the membrane separator from being damaged by contaminants in the natural gas.

19. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" and Daus et al. '549 as applied to claim 30 above, and further in view of Daus et al. '919.

The "Field Evaluation of a Membrane-Based Separation System" publication and Daus et al. '549 do not teach the processing step comprising adjusting the temperature of the treated gas to a marketable temperature.

Daus et al. '919 teaches a similar method for processing dirty natural gas comprising adjusting the temperature of the treated gas (in heat exchanger 104) to a marketable temperature in Fig. 1 and col. 4, lines 5-22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the temperature adjustment of Daus et al. '919 into the method of the "Field Evaluation of a Membrane-Based Separation System" publication and Daus et al. '549 to prepare the post-treatment gas for introduction into a commercial pipeline, as suggested by Daus et al. '919 in col. 4, lines 5-22. The Examiner notes that the phrase "treated gas" has been interpreted as gas that has been processed in the processing step.

20. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the printed publication "Field Evaluation of a Membrane-Based Separation System for Removing CO₂ from Natural Gas" in view of Woodall et al.

The "Field Evaluation of a Membrane-Based Separation System" publication does not teach the method comprising a liquefying the marketable gas produced by the processing step or placing the liquefied marketable gas in containers at the well site.

Woodall et al. teaches a similar method for processing dirty natural gas comprising liquefying the marketable gas (in liquifaction unit 14) produced by the

processing step and placing the liquefied marketable gas in containers (9) at the well site in Fig. 2 and col. 8, line 53 to col. 10, line 22.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the liquification and storage of Woodall et al. into the method of the "Field Evaluation of a Membrane-Based Separation System" publication to allow the method to be used in remote areas where pipeline construction is not commercially feasible, as suggested by Woodall et al. in col. 1, lines 27-51.

Allowable Subject Matter

21. Claims 7, 8, 12, 13, 18, 19, 26, 32 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 33 would be allowable if rewritten to overcome the objection set forth in this Office action.

22. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 7 and 8, the prior art made of record does not teach or fairly suggest the system of claim 6 wherein the pretreatment assembly comprises a recirculating assembly to recirculate gas through the heater until the gas reaches a desired temperature.

With regard to claims 12 and 13, the “Field Evaluation of a Membrane-Based Separation System” publication teaches the system comprising a control system in Fig. 1. However, the “Field Evaluation of a Membrane-Based Separation System” publication does not disclose any details of the control system or the control system acting on the pretreatment assembly. Ferrell teaches using hydraulically controlled safety valves to regulate the flow of natural gas from a wellhead in col. 1, lines 40-65. Wicks teaches providing a hydraulic plant (hydraulic plant 80) on a mobile cargo container (10) to control the positioning of the retractable gates (25,35) in Figs. 1 and 3 and col. 2, line 12 to col. 4, line 56.

The prior art made of record does not teach or fairly suggest the mobile gas separator system of claim 1 wherein a hydraulic plant is mounted on the mobile support to supply hydraulic power to the pretreatment assembly.

With regard to claims 18 and 19, the “Field Evaluation of a Membrane-Based Separation System” publication teaches the system comprising a heater adapted to adjust the temperature of the pretreatment dirty gas to a temperature suitable for the gas separator in Fig. 1.

The prior art made of record does not teach or fairly suggest the mobile gas separator system of claim 1 comprising a hydraulic plant mounted on the mobile support to supply hydraulic power to the pretreatment assembly, a generator mounted on the mobile support and adapted to power the hydraulic plant, means to circulate dirty

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pretreatment gas to fuel the heater, means to circulate post-treatment gas to fuel the heater, means to recirculate pretreatment gas through the heater until the pretreatment gas reaches a desired temperature, or means to selectively control the source of the gas used to drive the heater.

The Examiner notes that the phrase “means to” has been interpreted as invoking 35 U.S.C. 112, sixth paragraph since the phrases “means to circulate”, “means to recirculate” and “means to selectively control” are equivalent to “means for circulating”, “means for recirculating” and “means for selectively controlling”, respectively, and the claimed limitations are described in terms of their function not their mechanical structure. See MPEP 2181. Additionally, the phrases “pretreatment dirty gas” and “pretreatment gas” have been interpreted as gas that has not passed through the pretreatment assembly or the gas separator. Similarly, the phrase “post-treatment” gas has been interpreted as gas that has passed through the pretreatment assembly and the gas separator.

With regard to claims 26, 32 and 33, the prior art made of record does not teach or fairly suggest the method of claim 25 further comprising testing the pre-processed dirty gas during the processing step to determine marketability and terminating the processing step in response to a determination that the pre-processed dirty gas has become marketable.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Doshi et al., Karode et al., Baker et al., Hellerman et al., and EP 0 130 066 A2 references disclose similar systems and methods for processing dirty natural gas.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jason M. Greene
Examiner
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1/19/05

jmg
January 19, 2005